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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/890,550

01/14/2002

Kazutaka Majima

2000-22

4691

7590

05/18/2004

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EXAMINER

VO, HAI

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/890,550	MAJIMA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Hai Vo	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 43-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 43-49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 43-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashmead et al (US 5,534,328) in view of Tsukada (US 4,846,673) as evidenced by Kassir et al (US 5,964,646) substantially as set forth in the 02/18/04 Office Action. Ashmead as modified meets all the structural limitations and chemistry as required by the claims. The chemical processing apparatus comprises a plurality of laminae joined together and having inlet and outlet ports connected by a three dimensionally tortuous channels (figure 4, abstract). Ashmead teaches the laminae made of a ceramic material such as silicon carbide (column 3, lines 10-12). Ashmead discloses a wear resistant coating of silicon being deposited on the processed laminae before bonding (column 6, lines 60-65). This reads on Applicant's silicon bonding layer. Ashmead does not specifically disclose the laminae formed from a porous body of silicon containing ceramic material that has the pores being impregnated with a metallic silicon. Tsukada teaches a heat-resistant composite body comprising a porous body of silicon containing ceramic material that has the pores being impregnated with a silicon to provide the composite body with high thermal conductivity and uniform thermal distribution (abstract, column 2, lines 45-50). This is important to the expectation of successfully practicing the invention of Ashmead

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and thus suggesting the modification. Ashmead discloses the high thermal conductivity of the laminae enhances heat distribution and promotes uniform temperatures within the apparatus, and therefore incoming chemical reactants are completely reacted upon heated to prevent formation of undesired compounds or thermal degradation of the desired product (Ashmead, column 7, lines 1-13).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the porous body as taught in Tsukada as the laminae of the integral structure motivated by the desire to provide the integral structure with superior thermal conductivity which enhances heat distribution and promotes uniform temperatures within the apparatus. It is believed that the motivation to combine the two cited references is sufficient and strong. The examiner agrees that Ashmead as modified by Tsukada fails to teach the integral structure having been used as a grinding surface of the wafer grinder table.

However, most available wafer grinder tables have a grinding surface that is made of porous ceramic material as evidenced by US 5,964,646, Kassier et al (figure 2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the integral structure as a wafer grinder table because such is the intended use of the materials. Most importantly, the composition and the structure of the apparatus are apparently achieved by Ashmead as modified by Tsukada. The apparatus comprises the plurality of base materials, each of which is a ceramic metal composite formed by impregnating silicon in open pores of a porous body made of silicon containing ceramic, a bonding layer formed from silicon

to bond the base materials and a fluid passage formed in the bonding interface of the base materials. Therefore, it is not seen that the apparatus of Ashmead as modified by Tsukada would have not been used as the grinding table of the present invention. Therefore, the art rejections are sustained.

***Conclusion***

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax

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phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HV



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